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THE FUR VALUE OF THE MICHIGAN
RED SQUIRREL

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This is to certify that the

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"The Fur Value of the Michigan Red Squirrel"

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George W. Petrides
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THE FUR VALUE OF THE MICHIGAN RED SQUIRREL

By

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THE FUR VALUE OF THE MICHIGAN RED SQUIRREL

The purpose of this study was to determine the value of the Michigan red squirrel, Tamiasciurus hudsonicus loquax Bangs, as a fur bearer.

It was thought that the fur of the Michigan red squirrel might be similar in quality to that of the Canadian subspecies, T. h. hudsonicus Erxleben, with which intergradation occurs in southern Quebec and Ontario (Hatt, 1929).

Between 1940 and 1950, the average annual collection of red squirrel pelts in Canada was in excess of 2,500,000, and the prices received were between twenty-four and seventy-nine cents per pelt (D.B.S., 1951).

According to the census of Canadian furs exported in the season of 1947-1948 (D.B.S., 1951), the red squirrel was listed as fifth in total value of wild caught furs in the Dominion and in the seasons of 1948-1949 and 1949-1950, it was accorded sixth place.

In recent years United States fur manufacturers received between 75,474 and 2,394,025 Canadian squirrel pelts annually at prices that ranged from fifteen cents in 1939 to eighty-six cents per pelt in 1946 (U.S.D.C., 1939-1946).

According to Bachrach (1946), squirrel pelts are variously used in the manufacture of fur coats, trimming of fur and cloth garments and manufacture of linings for outer garments. Generally, pelts from Alberta and Saskatchewan are used for fur coats, and those of other provinces for trimming (Comer, personal letter).

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Appreciation is expressed to the Hudson's Bay Company for their assistance in grading and appraising the pelts.

PROCEDURE

Michigan specimens were collected from Chippewa, Mackinac, and Schoolcraft Counties, in the Upper Peninsula of Michigan, during December 1951 and January 1952. In the Lower Peninsula, pelts were taken during February 1952, in Roscommon and Ogemaw Counties. One specimen was secured from Kalamazoo County in late November 1951. The skins were prepared as cased pelts with the leather side out and tail attached.

Collection of specimens was accomplished by shooting with twelve guage shotgun or .22 rifle and by trapping with ordinary rat traps. Conventional solid bullets and shot ammunition were both used in the rifle.

When the collection of specimens was concluded, the pelts were submitted to the Hudson's Bay Company, Montreal, Canada, for grading and appraisal.

HUNTING AND TRAPPING SUCCESS

Evidence of good squirrel populations in the form of nests, tracks, snow tunnels, and cuttings, were abundant in all locations from which animals were taken. Greater evidence of red squirrel abundance was found in or near stands of coniferous trees than in any other type of habitat observed (Table 1). The distribution was not limited to extensive unbroken stands of conifers. Isolated groves, two acres or less in size, along U. S. Highway No. 2 in Central Chippewa County, were found to contain as many as five red squirrels each.

Chi square tests showed significant variation in hunting success between the different habitat types from which specimens were taken and revealed highly significant differences when the habitats were compared on the basis of the squirrels seen per gun-hour. In the latter test, the jack pine and jack pine-oak habitats showed the highest chi square values.

Definite statements as to the relative abundance by habitats could not be made due to the small numbers involved in these observations. Other evidence indicated that the jack pine and jack pine-oak

were more productive habitat types. Field signs such as tracks, snow tunnels and nests, appeared to be more abundant in the jack pine-oak habitat. In addition, on March 18, 1952, a friend of the writer shot 5 squirrels in 3 hours in this habitat (Walter Palmer, personal letter) in contrast to the low success experienced by the writer in February.

Table 1. - Hunting and Trapping Success in Various Forest Habitats.

Dominant Tree Species	Gun-Hours		Squirrels Shot	Gun-Hours Per Pelt	Squirrels Trapped	Trap-Nights Per Pelt
	Squirrels Seen	Per Squirrel Seen				
Red Pine	4	0.9	3	1.17	1*	*
Jack Pine	23	1.4	12	2.7	5	16
Balsam Fir, White Spruce, White Birch, Aspen, Elm and Red Maple	7	2.0	4	3.5	0	--
Jack Pine, Northern Pin Oak and Black Oak	4	8.6	3**	11.5	1**	96
Red Pine, Balsam Fir, White Birch and Aspen	0	--	--	--	0	(24 Trap-Nights)
Beech, Maple and Balsam Fir	0	--	0	(5.5 Gun-Hours)	0	(8 Trap-Nights)
White Cedar, Black Spruce and Eastern Hemlock	0	--	0	(18.5 Gun-Hours)	--	--
Totals	38	2.8	22	4.9	7	29.7

* Collection data on one specimen unavailable

** Two additional pelts collected from Highway kill

Advice from Hudson's Bay Company personnel (Petrides, in conversation) indicated that an earlier harvest is more productive in Canada. Palmer's experience may indicate that later hunting also might be desirable in order to avoid unfavorable weather conditions.

The term "prime" used in Table 2 is applied to pelts that showed no bluish or blackish discoloration of the skin due to fur replacement. Most pelts taken were prime. Exceptions had small areas of fur replacement under the chin and near the forelegs. Only one prime pelt was collected from an adult in November, and was not considered in Table 2. No significant change was found in the ratio of prime adult pelts to prime juvenile pelts during the collection period.

Table 2. - Distribution of Prime Pelts During Collection Period.

	December	January	February
Numbers of Adult Pelts	3	9	5
Percentage of Prime Pelts Among Adults	100	78	60
Numbers of Juvenile Pelts	7	4	2
Percentage of Prime Pelts Among Juveniles	43	50	100
Total Percentage of Prime Pelts	70	69	71

FUR VALUE AS RELATED TO METHOD OF COLLECTION

The shotgun was most effective on moving shots, but usually resulted in pellet damage to the sides and backs of the pelts. Three

of the specimens collected in this manner were damaged too badly to save. The limited range and resulting pellet damage of the .22 shot ammunition made its use unsatisfactory. Except for difficult running shots, the .22 rifle using solid bullets, was found to be the most satisfactory weapon. Where the animals could be shot through the head the damage was not sufficient to lower the value of the pelt. Pelts were not damaged when the animals were trapped.

The results of pelt appraisal by the Hudson's Bay Company are presented in Table 3. The terms used by them are:

Class I contains pelts with prime or near prime skins and good quality fur.

Class II consists of pelts with thin fur, pelts of small size, or unseasonable pelts that showed a bluish discoloration of the skin indicative of unprime condition.

Clean describes a pelt of good quality, within its respective class, that is not damaged to any considerable degree.

Slightly shot is the term applied to those pelts that have sustained very slight shot damage or to pelts that have transparent spots or windows due to the presence of a sparse undercoat.

Damaged or slightly damaged pelts are those which have been damaged to the extent that their usefulness in manufacturing is impaired.

Table 3. - Numbers and Values of Pelts According to Method of Capture

Class	No.	Value	.22 Rifle	12 Gauge Shotgun	.22 Shot Ammunition	Trapped	Highway Kill
I Clean	10	22¢	4	1		5	
I Slightly Shot	9	18¢	6	1	1	1	
II Clean	5	14¢	2			1	2
Slightly Damaged	3	12¢		2	1		
Damaged	4	09¢		3	1		
Total	31	\$5.24	12	7	3	7	2
Average value per pelt		16.9¢	18.7¢	13.0¢	13.0¢	20.3¢	14.0¢

Of the pelts graded as Slightly Damaged or Damaged, four would have been placed in Class I Clean and three in Class II except for damage caused by shotgun or .22 ammunition shot pellets. The average value of the pelts according to size and fur quality and disregarding damage in capture was nineteen cents. The values of Michigan pelts in the top two classes were twenty-two and eighteen cents as compared with approximately twenty-six and twenty-three cents in these classes for pelts taken in Quebec, Nova Scotia, and Ontario, Canada, during the 1951-52 season. Michigan red squirrel pelts appear unimportant as a fur resource because of their low value. Their best use may be in supplementing income from other furs.

AGING AND SEXING

Age and sex of specimens were determined by examination of reproductive organs. A light colored scrotum in the male and thread-like uterus in the female were considered as evidences of immaturity. Among 14 adults, 6 were males and of the 17 juveniles 10 were males. The results were inconclusive when age determination was attempted by inspection of epiphyseal ossification using the X-ray technique described by Petrides (1951).

SUMMARY

Michigan red squirrel pelts, taken from Chippewa, Mackinac, and Schoolcraft Counties in the Upper Peninsula, and from Roscommon, Ogemaw, and Kalamazoo Counties in the Lower Peninsula, were presented for sale and their values appraised. Values were between nine and twenty-two cents per pelt. The average value determined on the basis of size and fur quality alone was nineteen cents per pelt.

APPENDIX

APPENDIX

Computations of Chi Square Values For Data Included In Tables 1 and 2.

Table 4. - Comparison of Habitats According To Squirrels Shot Per Gun-Hour (table 1 - page 4)

Habitat	Squirrels Shot (o)	Expected ¹ (c)	Deviation (o-c)	$\frac{(o-c)^2}{c}$	Gun-Hours
Red Pine	3	.9	2.1	4.900	3.5
Jack Pine	12	8.3	3.7	1.649	32.0
Balsam Fir, White Spruce, etc.	4	3.6	.4	.444	14.0
Jack Pine - Oak	3	9.0	6.0	4.000	34.5
Total	22	21.8	0 $\chi^2 = 10.993$, significant at 5% for 3 d. f.		84.0

¹ Expected = $\frac{\text{total squirrels shot}}{\text{total gun-hours}} \times \text{gun-hours per habitat}$

Table 5. - Comparison of Habitats According to Squirrels Seen Per Gun-Hour (table 1 - page 4)

Habitat	Squirrels Seen (o)	Expected ¹ (c)	Deviation (o-c)	$\frac{(o-c)^2}{c}$	Gun-Hours
Red Pine	4	1.6	2.4	3.600	3.5
Jack Pine	23	14.4	8.6	5.136	32.0
Balsam Fir, White Spruce, etc.	7	6.3	.7	.077	14.0
Jack Pine - Oak	4	15.5	11.5	8.532	34.5
Total	38	37.8	0	$\chi^2 = 17.345,$ significant at 1% for 3 d. f.	84.0

$$^1 \text{ Expected} = \frac{\text{total squirrels seen}}{\text{total gun-hours}} \times \text{gun-hours per habitat}$$

Table 6. - Comparison of Ratios Between Adult and Juvenile Prime Pelts in Different Months (table 2 - page 5)

Month	Total Adult Pelts	Prime Adult Pelts (o)	Prime Juvenile Pelts Total Juvenile Pelts	Expected Prime Adult Pelts ² (c)	Deviation	$\frac{(o-c)^2}{c}$
December	3	3	3/7	1.3	1.7	2.223
January	9	7	2/4	4.5	2.5	1.470
February	5	3	2/2	5.0	2.0	.800

$$\chi^2 = 4.493,$$

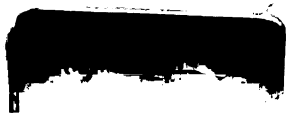
not significant
at 2 d. f.

$$^2 \text{ Expected} = \frac{\text{prime juvenile pelts per mo.}}{\text{total juvenile pelts per mo.}} \times \text{total adults pelts per mo.}$$

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